TRU-SEAL®

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ALUMINUM AWNING WINDOWS

SCHOOL

TULSA COUNTY COURT HOUSE
Tulsa, Oklahoma

COMMERCIAL

RESIDENTIAL

- Micromatic Adjustment
- Torque Bar Operation
- Mitered and Flash Welded Corners
- Smoothline Frame
- .059 c.f.m. Air Infiltration
- Concealed Weatherstripping
- Heavy Duty Operator

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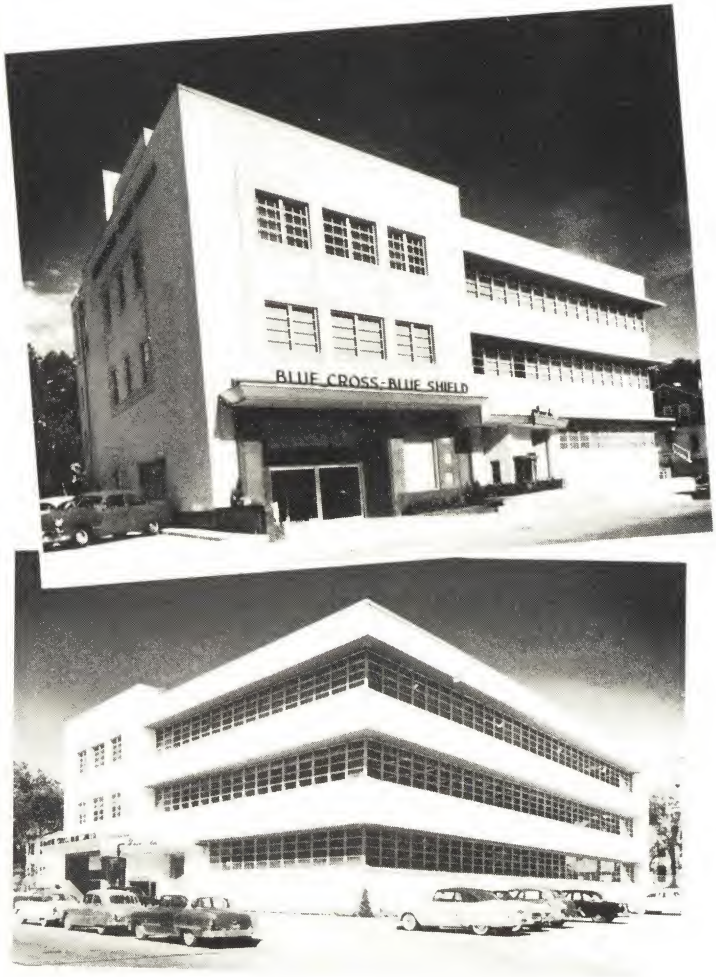
The Cover Pictures

1—The Tulsa County Court House in Tulsa, Oklahoma
Architect—Black & West, A.I.A., in Tulsa, Oklahoma
Contractor—Manhattan Construction Co., in Muskogee, Oklahoma

2—The Department of Health in Union City, New Jersey
Architect—
Contractor—Bartolucci & Sons in Union City, New Jersey

3—Residence in Dearborn, Michigan
Architect—Merle W. Hogan, A.I.A.

4—Sunday School
Zion Evangelical Lutheran Church
Mt. Clemens, Michigan
Pellerin & Dworski, Architects
Alex Gow, Contractor



The Blue-Cross—Blue-Shield Building, Tulsa, Oklahoma

Architect—Koberling & Brandborg, A.I.A., Tulsa, Oklahoma

Contractor—John B. Martin Construction Co., Oklahoma City and Tulsa, Oklahoma

Manufactured under Patents
No. 2383912 & 2688779
Other Patents Pending

The Story of Tru-Seal..

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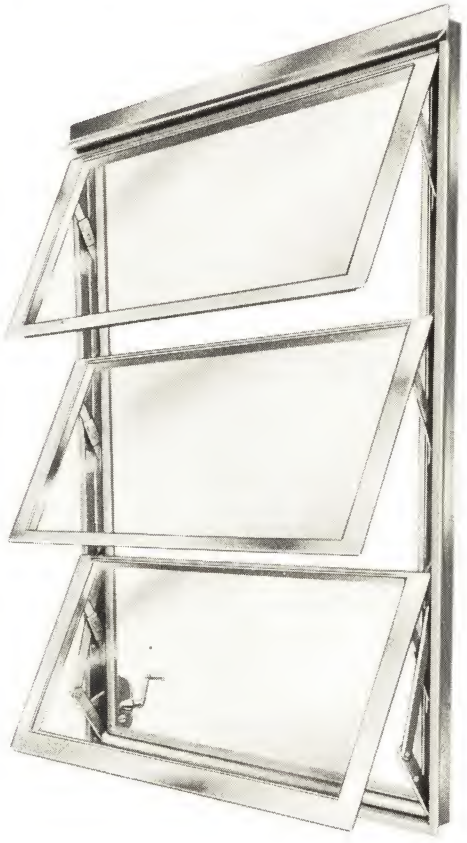
. . . is the story of progress

No story of engineering progress during the last half century would be complete without a chapter devoted to the contributions of the Industrial Machine Tool Co., Inc. Established 39 years ago in Fenton, Michigan, this company takes great pride in its now famous TRU-SEAL Window Division which manufactures TRU-SEAL aluminum awning windows.

At the right, from TRU-SEAL'S "Zero Test" Series 53, is one of the many weather-stripped awning windows available from TRU-SEAL. Into its carefully conceived basic design has gone all the skill and foresight of TRU-SEAL'S top engineering staff. Here is the window with low, low air infiltration . . . tested for only 0.059 c.f.m.! See page 15 for reproduction of the photostatic copies of the Pittsburgh Testing Laboratory report.



The TRU-SEAL "Zero Test"

Series 53 windows feature:

Concealed Weather-Stripping

Genuine vinyl weather-stripping is used both on the outside perimeter for each operating vent and on the inside of the frame. It is so designed that it resists and deflects any wind pressure when the vents are in a closed position.

A Smoothline Frame

All corners are mitered and flash welded with the exposed surfaces dressed smooth. There are no screws, mechanical fasteners or protrusions of any kind on the inside face of the frame . . . giving you a rich and smooth appearance.

Micromatic Adjustment

Assures the seal on both perimeters and along the meeting rails of those vents.

Torque Bar Operation

For smooth easy opening and closing . . . eliminates need for any manual locking device.

Heavy Duty Operator

Efficient and quiet—and most important, jam-free!

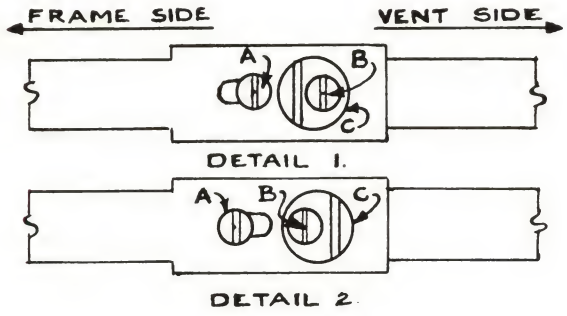
All tools, dies, jigs and fixtures used in the manufacture of TRU-SEAL windows are as accurate as Industrial's 39 years of experience and skill can make them.

These FOUR STAR TRU-SEAL FEATURES

mean better service in every detail

Micromatic Vent Adjustment

On both sides of each operating vent, TRU-SEAL'S famous patented micromatic adjustment assures the seal on both perimeters and along the meeting rails of those vents.



1. To adjust, loosen screws "A" and "B". Turn eccentric cam "C" for desired adjustment. Tighten screw "A" to hold adjustment. Tighten screw "B". In adjusting, cam "C" may be turned either clockwise or counter-clockwise.
2. When slots in eccentric cam "C" is on *frame* side of screw "B" as illustrated in detail 1, vent is a maximum outward adjustment. When slot is on *vent* side of screw "B" as in detail 2 vent is at maximum inward adjustment. Total range of adjustment is ¼ inch.

Smooth Operating Mechanism

The vents of TRU-SEAL windows are operated by a simple system of levers with all linkage concealed inside the channel members. The motion is smooth, easy and quiet. Power is supplied by a simple crank and gear operator attached to one jamb at the sill. Each vent is attached to a slide bar united by a powerful cross shaft, thus reducing the number of moving parts and adding strength to the entire assembly. The side opposite the operator is turned still further, greater seal and tension is set up through the torque of the cross shaft, eliminating the need for any manual locking device. The vents remain locked in any position of opening.

Flash Welded Frame

All corners are mitered and flash-welded to provide maximum strength, rigidity and safety. All exposed surfaces are dressed smooth.

The Finest in Materials

All frame and vent members are made of extruded 63S-5 aluminum alloy. All metal parts within the frame are of aluminum or stainless steel.

Maximum Opening

Each operating vent has a maximum opening of not less than 80 degrees with the upper vent dropping to a sufficient degree to permit the cleaning of that vent from within. No need to go outside to wash TRU-SEAL windows. With the vents in open position, both sides of each glass can be easily reached from the inside.

Easy-to-Install Screens and Storm Sash

Both may be easily and quickly removed and installed from the inside. They fit snugly inside the frame completely free of the operating mechanism, permitting all vents to be opened and closed for ventilation.

Controlled Ventilation

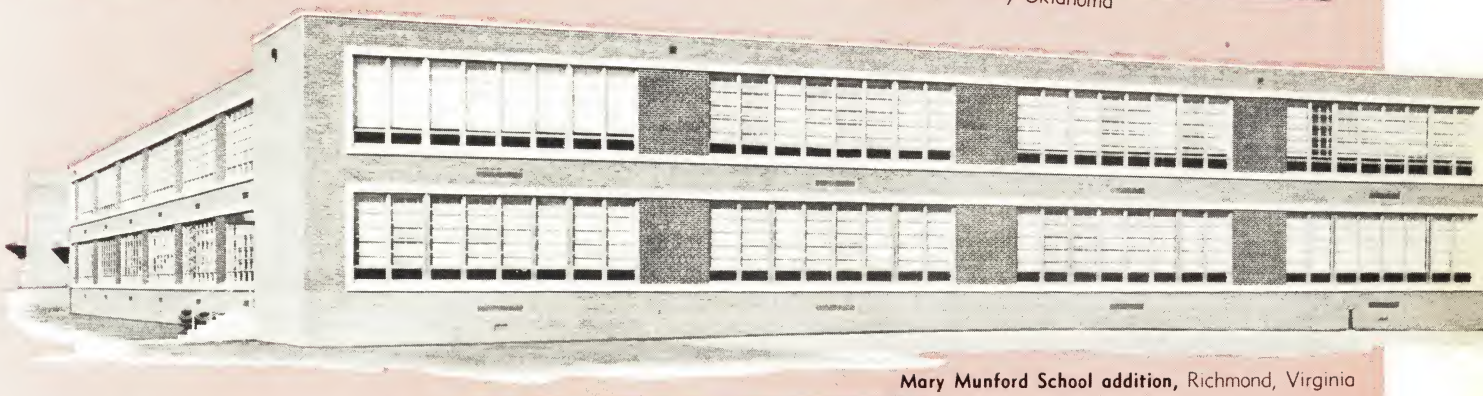
Control ventilation all year long. Exclusive patented micromatic adjustment assures perfect dual seal around the entire perimeter of each vent. Concealed cross shaft permits every window to be opened and locked into any position to allow circulating ventilation. The glass panels form awning protection against rain when open and a wind, water and dust-proof seal when closed.

Flexibility of Design

Available in a wide variety of sizes, TRU-SEAL offers a figuration for every possible requirement. Our engineers have designed TRU-SEAL windows to meet individual needs and will fabricate any number of units of any design that may be desired for a job.

Citizens Building & Loan Association, Silver Springs, Md.

YMCA Building, Tulsa, Oklahoma



Mary Munford School addition, Richmond, Virginia

Residence, Detroit, Michigan

Porch Enclosure, St. Louis, Missouri

Resurrection Church, St. Louis, Missouri

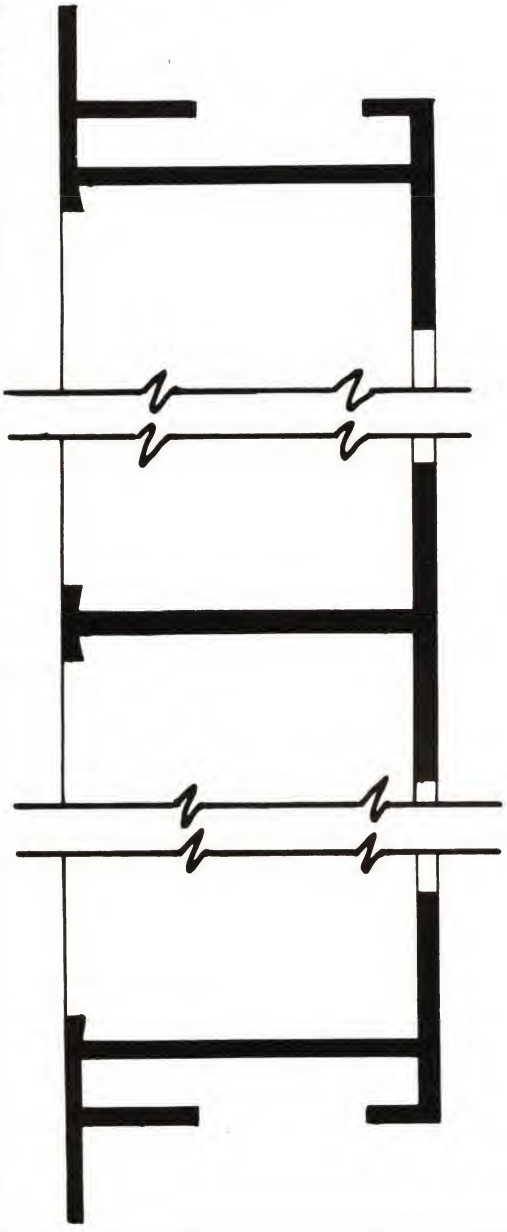
Experts in all phases of the building industry have agreed that the TRU-SEAL aluminum awning window has greater versatility and adaptability than any other window on the market. It offers the architect and builder the smoothest operating, finest construction and best engineering features of any in the awning window field today.
It meets all the requirements necessary in the awning window industry.

- Initial cost is no higher than many ordinary old fashioned windows.
- Maintenance costs are practically nil due to superior design and construction.
- Draft free? See Pittsburg test results on page 15.
- Can be easily cleaned from the inside.
- Smooth easy torque bar operation.
- Heavy Duty yet unobtrusive, beautiful hardware.
- Screens and storm sash interchangeable from inside building.
- Controlled ventilation.
- Flexibility of window figuration to meet all requirements.
- Special sizes to fit any opening at moderate costs.
- Patented Micromatic Adjustment.
- Flashweld corners.
- Smoothline frame with no inside screws etc. to mar beauty.

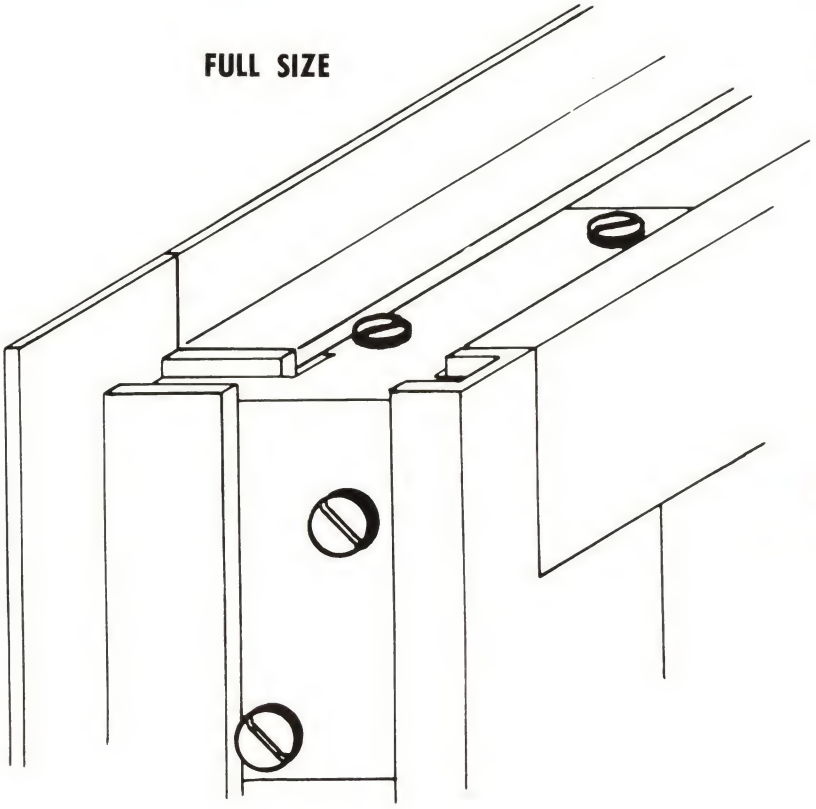
The TRU-SEAL engineers are constantly striving to improve the window design in every way. Their knowledge and experience is available to any one desiring window help.

TRU-SEAL®

K-D Picture Windows



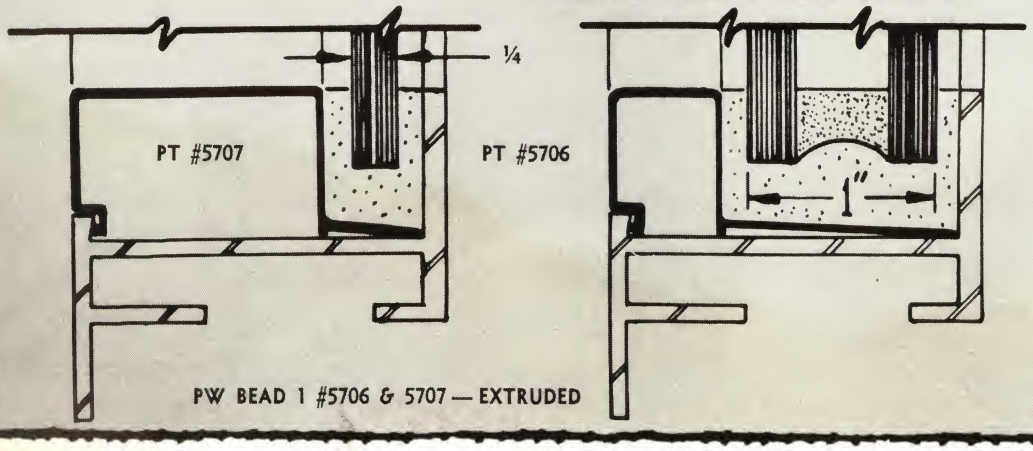
FULL SIZE



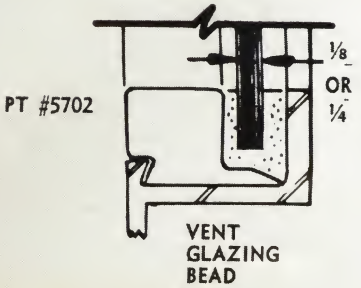
Check These Advantages of K.D.P.W.

- Convenient and easy to ship.
- Travel damage is kept at a minimum.
- A minimum amount of storage accommodates your inventories of standard sizes.
- Heavy extruded sections are easy to assemble.
- *Immediately available* to customers.
- Wide range of sizes.
- Glazing with compound or bead is designed to take ⅛" to 1" glass.

GLAZING BEAD & APPLICATION



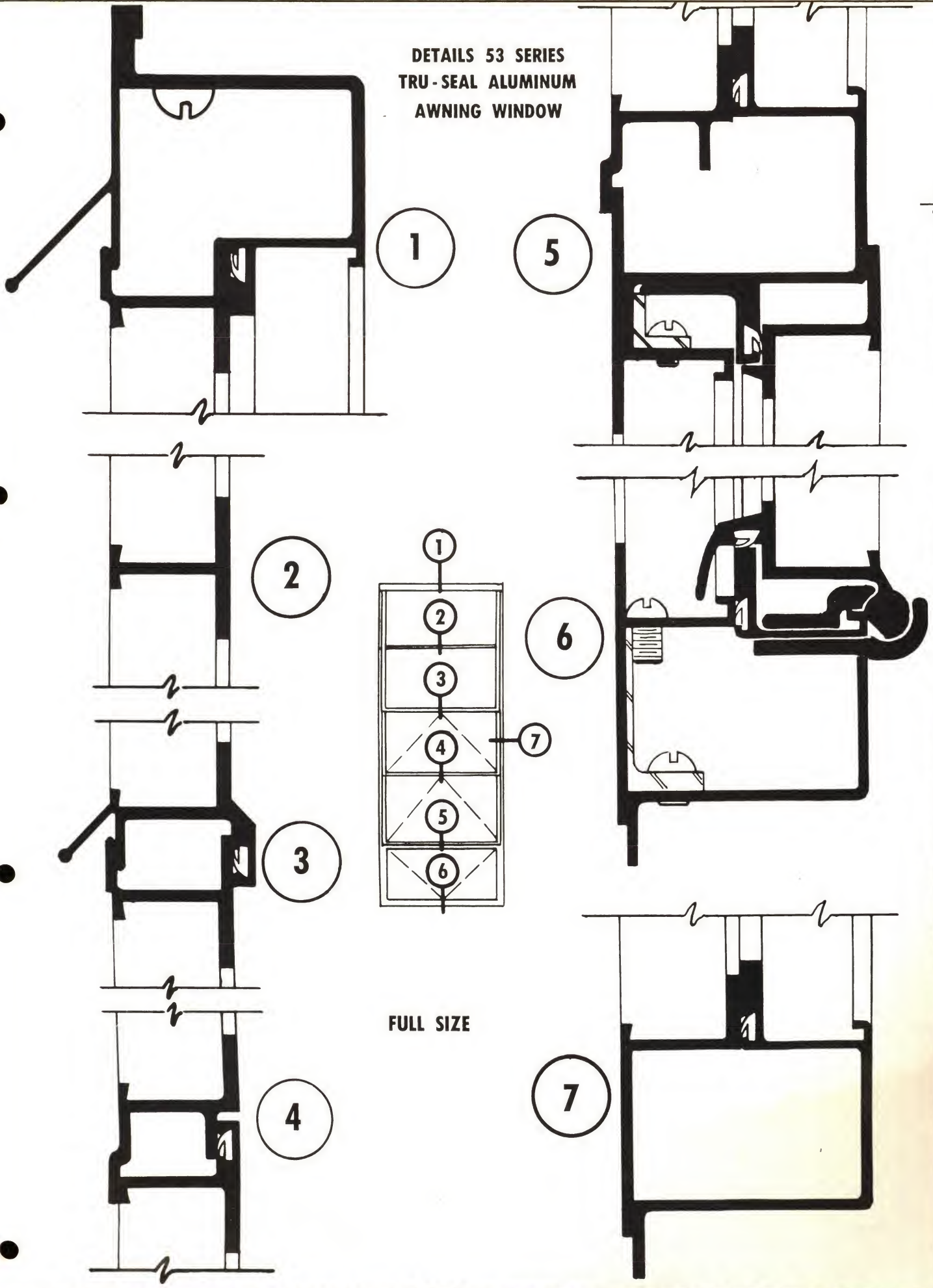
PW BEAD 1 #5706 & 5707 — EXTRUDED



VENT GLAZING BEAD #5702 ROLLED SECTION

For use in awning windows only

DETAILS 53 SERIES TRU-SEAL ALUMINUM AWNING WINDOW

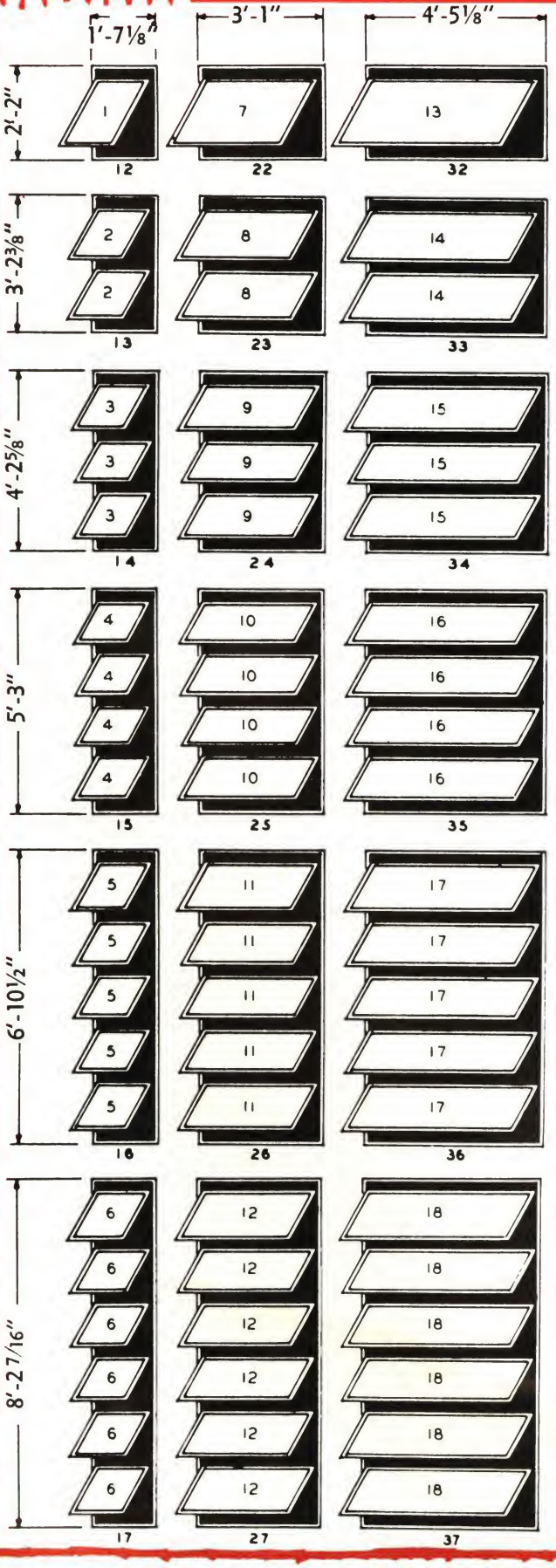


FULL SIZE

TRU-SEAL®

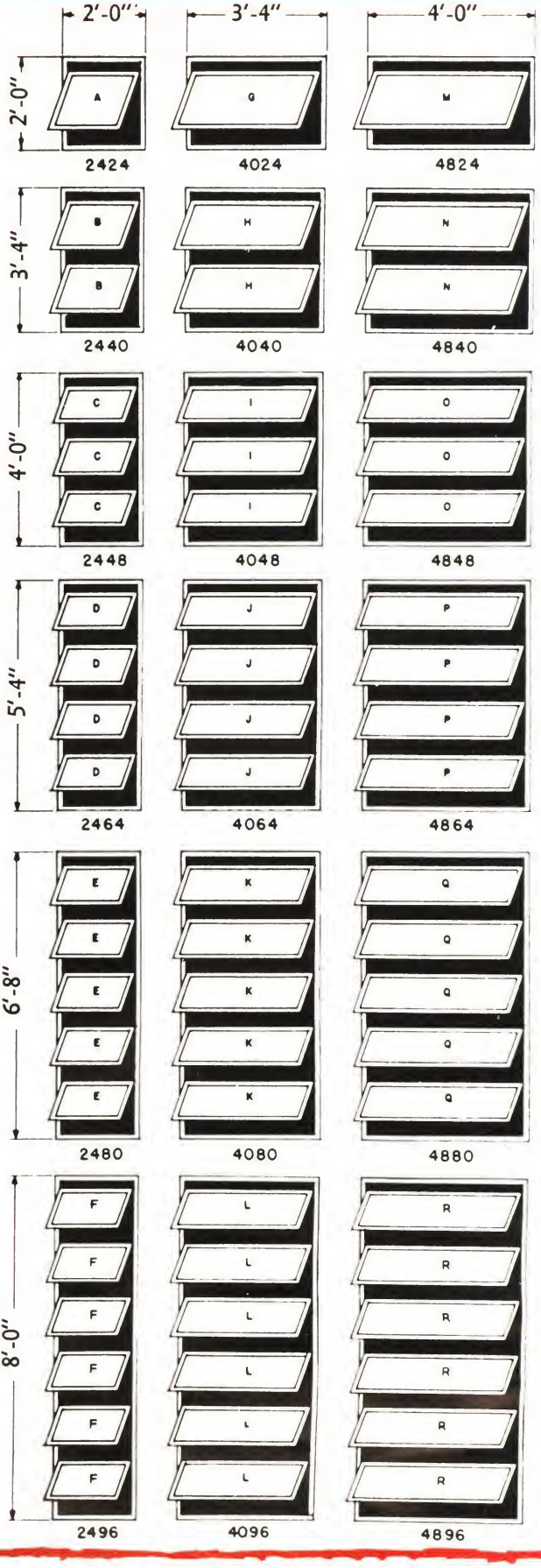
Stock Window Sizes

COMMODITY



ALL VENTS ON ANY ONE COMMODITY OR MODULAR WINDOW HAVE SAME GLASS OPENING DIMENSIONS

MODULAR



Special Sizes

TRU-SEAL®

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Limitations of Special Sizes

Any maximum dimensions on the chart at the right is based on glazing with double strength glass. Where heavier glass is required these maximums must be revised to meet the need.

Engineering information will be gladly furnished on any problem.

Vent Sizes

Minimum	Maximum
13⅝" Glass Height	22⅜" Glass Height

Hopper Sizes

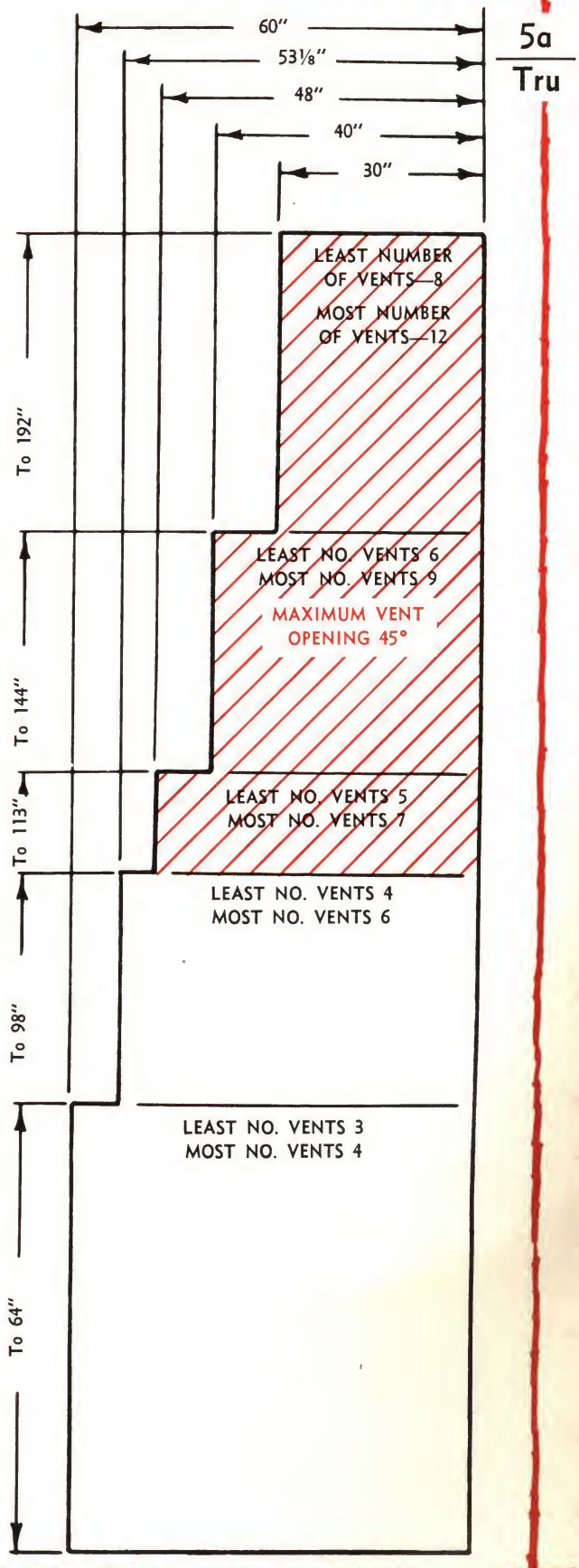
The maximum window width for any window with a single hopper is 53⅛".

Minimum Hopper Vent Height 10.5" G.O.

Maximum Hopper Vent Height 24" G.O.

Maximum Hopper Vent Opening 45°

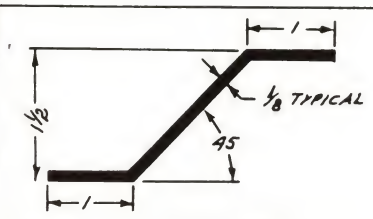
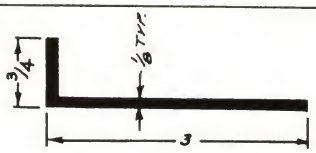
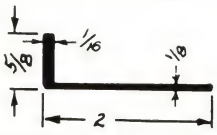
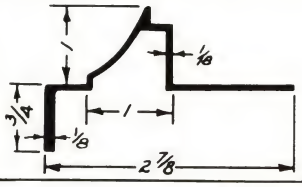
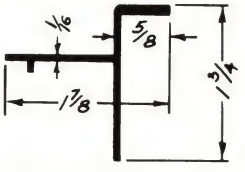
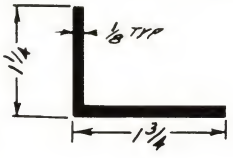
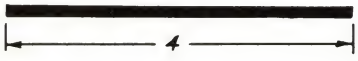
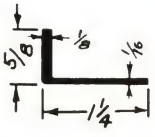
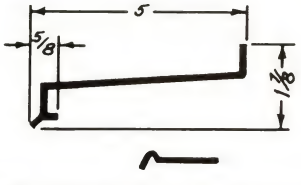
Tru-Seal reserves the right to establish the number of vents in any window.



ACTUAL GLASS SIZES

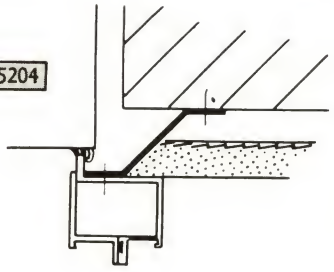
COMMODITY		MODULAR	
S1	15x21⅜	SA	19⅞x19⅜
S2	15x16 5/16	SB	19⅞x17⅛
S3	15x14 9/16	SC	19⅞x13 11/16
S4	15x13¾	SD	19⅞x14
S5	15x14 11/16	SE	19⅞x14 3/16
S6	15x14 11/16	SF	19⅞x14¼
S7	32⅞x21 7/16	SG	35⅞x19 7/16
S8	32⅞x16⅜	SH	35⅞x17 3/16
S9	32⅞x14⅝	SI	35⅞x13¾
S10	32⅞x13 13/16	SJ	35⅞x14 1/16
S11	32⅞x14¾	SK	35⅞x14¼
S12	32⅞x14¾	SL	35⅞x14 5/16
S13	49x21 7/16	SM	43⅞x19 7/16
S14	49x16⅜	SN	43⅞x17 3/16
S15	49x14⅝	SO	43⅞x13¾
S16	49x13 13/16	SP	43⅞x14 1/16
S17	49x14¾	SQ	43⅞x14¼
S18	49x14¾	SR	43⅞x14 5/16

TRU-SEAL® Fins and Anchors

PART NO. & USE	ILLUSTRATION
5204 FIN OR ANCHOR FOR: HEAD JAMB & SILL	
5251 FIN OR ANCHOR FOR: HEAD JAMB & SILL	
5257 FIN OR ANCHOR FOR: HEAD JAMB & SILL	
5253 BRICK STOP FIN FOR: JAMB	
5254 TRIM STOP FIN FOR: JAMB	
5255 FIN OR ANCHOR FOR: HEAD JAMB & SILL	
5262-A1 ANCHOR FOR: HEAD JAMB & SILL	
5252 FIN OR ANCHOR FOR: HEAD JAMB & SILL	
5228 SILL & CLIP FOR: SILL ONLY	

Suggested Applications

5204



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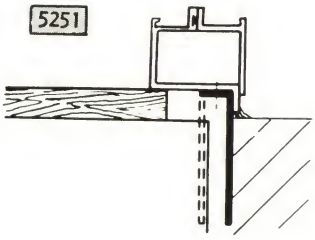

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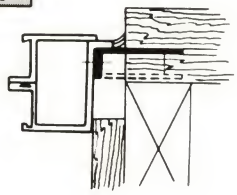

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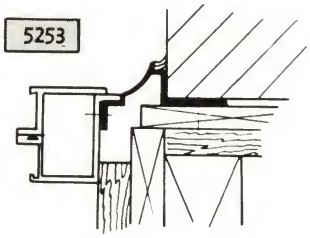

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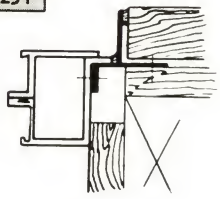

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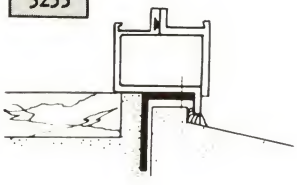

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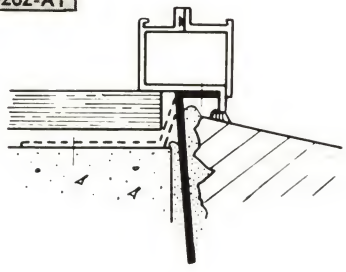

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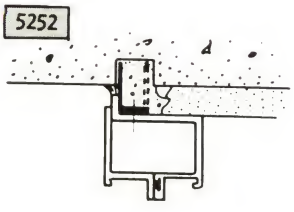

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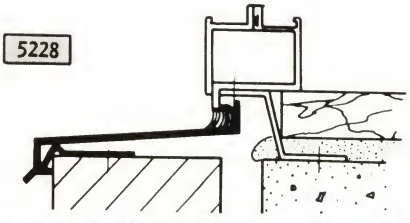
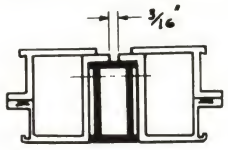
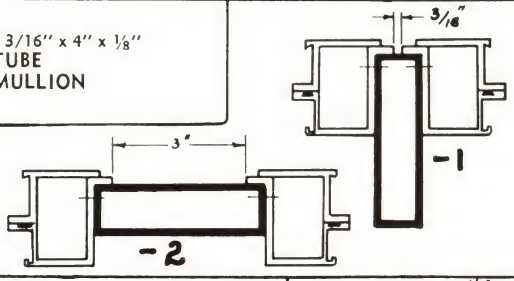
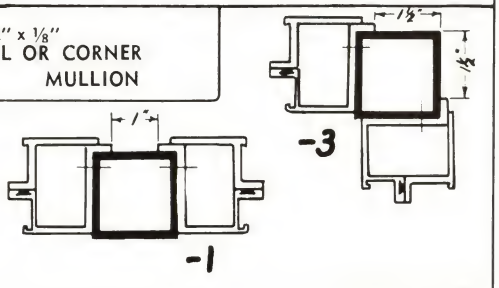
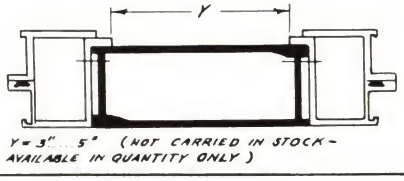
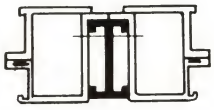
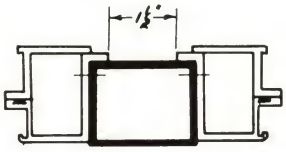
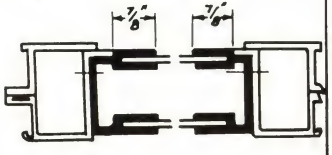
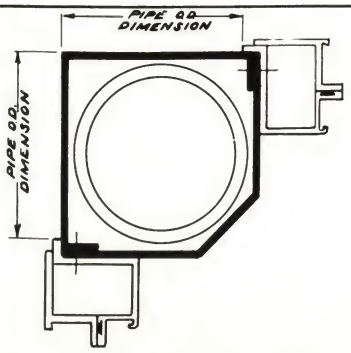
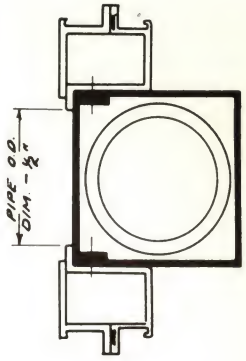
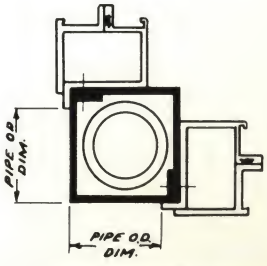
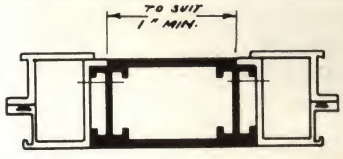
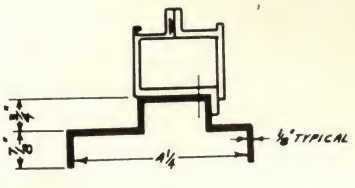


Cover Plates and Mullions

TRU-SEAL®

PART NO.	ILLUSTRATION
5206 1 3/16" x 1⅞" x 3/32" TUBE MULLION	
5203 1 3/16" x 4" x ⅛" TUBE MULLION	
5210 2" x 2" x ⅛" WALL OR CORNER MULLION	
5224-1 Y" x 1⅞" x ⅛" VARIABLE WIDTH MULLION	
5221 1" x 1¾" x 3/32" ZERO MULLION	
5223 2½" x 2" x ⅛" TUBE MULLION	
5224 2" (Min.) x 1⅞" x ⅛" EXPANDABLE MULLION	

PART NO.	ILLUSTRATION
5229 (PIPE O.D. DIMENSION) CORNER COLUMN COVER PLATES METAL THICKNESS AS SPECIFIED	
5230 (PIPE O.D. DIMENSION) WALL COLUMN COVER PLATES METAL THICKNESS AS SPECIFIED	
5231 (PIPE O.D. DIMENSION) CORNER COVER PLATES METAL THICKNESS AS SPECIFIED	
5221-S SPACER MULLION	
5233 GLASS BLOCK SURROUND	

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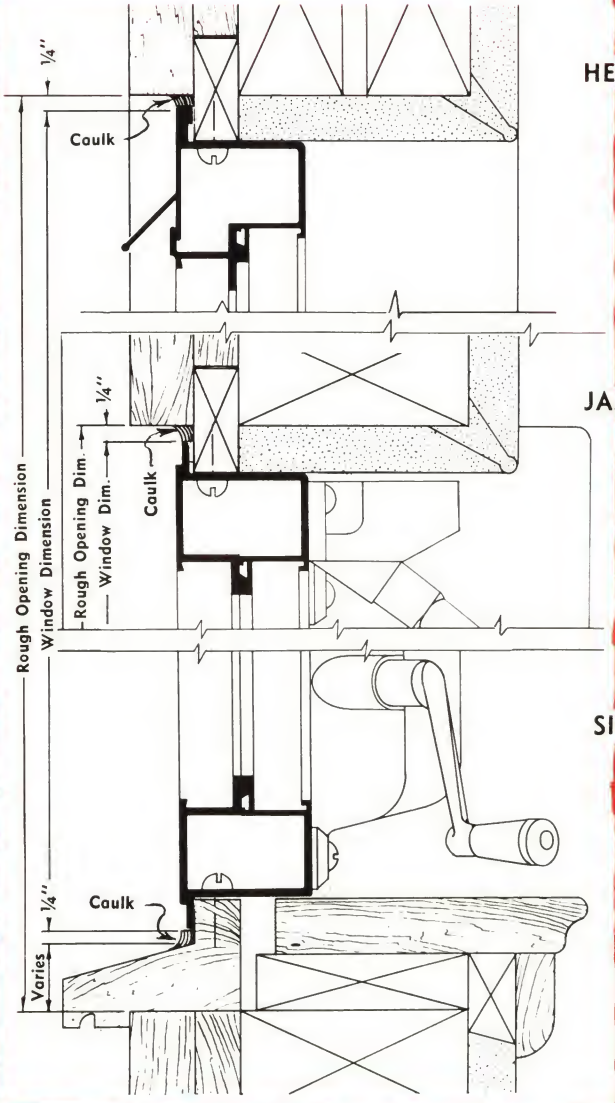
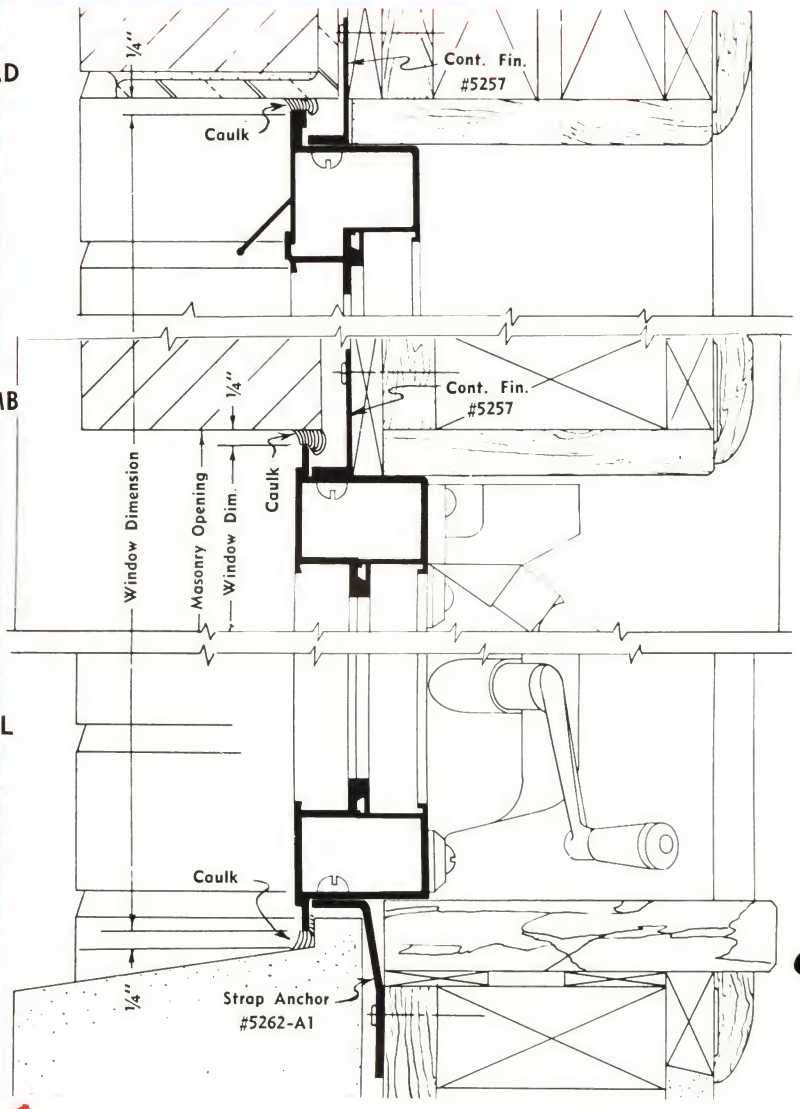
Typical Installation

FRAME



BRICK VENEER



SPECIFICATIONS

GENERAL – All windows shall be aluminum awning windows as manufactured by the Tru-Seal Window Division of Industrial Machine Tool Co., Inc., Fenton, Michigan. Types and sizes shall be shown on the plans.

MATERIAL – All frame and vent members shall be of extruded 63S-T5 aluminum alloy with approximately 3/32" thickness. Weathering and overlaps shall not be less than ¼".

All frame members shall have a minimum depth of 1-31/32".

All vent sections shall have a minimum depth of 31/32".

All mechanisms and fasteners contained within the frame shall be of suitable aluminum or stainless steel.

CONSTRUCTION – The operation mechanism shall be concealed within the jamb and sill sections of the frame. The operating mechanism shall consist of two slide bars containing vent and link mechanism; both slide bars are to be connected by a cross shaft for maximum power transmission from the mechanical operator, resulting in a smooth, easy and efficient operation.

FRAME – All corners shall be mitered and electrically flash welded with exposed surfaces dressed smooth. The inner flange of the window frame shall be designed so as to contain a weatherstrip retaining channel on the exterior face of the flange. There shall be no protrusions, screws or mechanical fasteners of any kind on the inner exposed surface of the frame.

WEATHERSTRIPPING – Shall be of vinyl – or equivalent – no rubber, felt or substitute material shall be used. The design of that weatherstrip shall be such as to resist and deflect any wind pressure applied upon it when the vent is in a closed position.

HARDWARE – The operating mechanism shall be enclosed within a streamlined housing attached to one jamb at the sill. It shall consist of a hardened steel worm gear, with 24S-T36 aluminum alloy connecting links.

Details

TRU-SEAL®

CONCRETE BLOCK

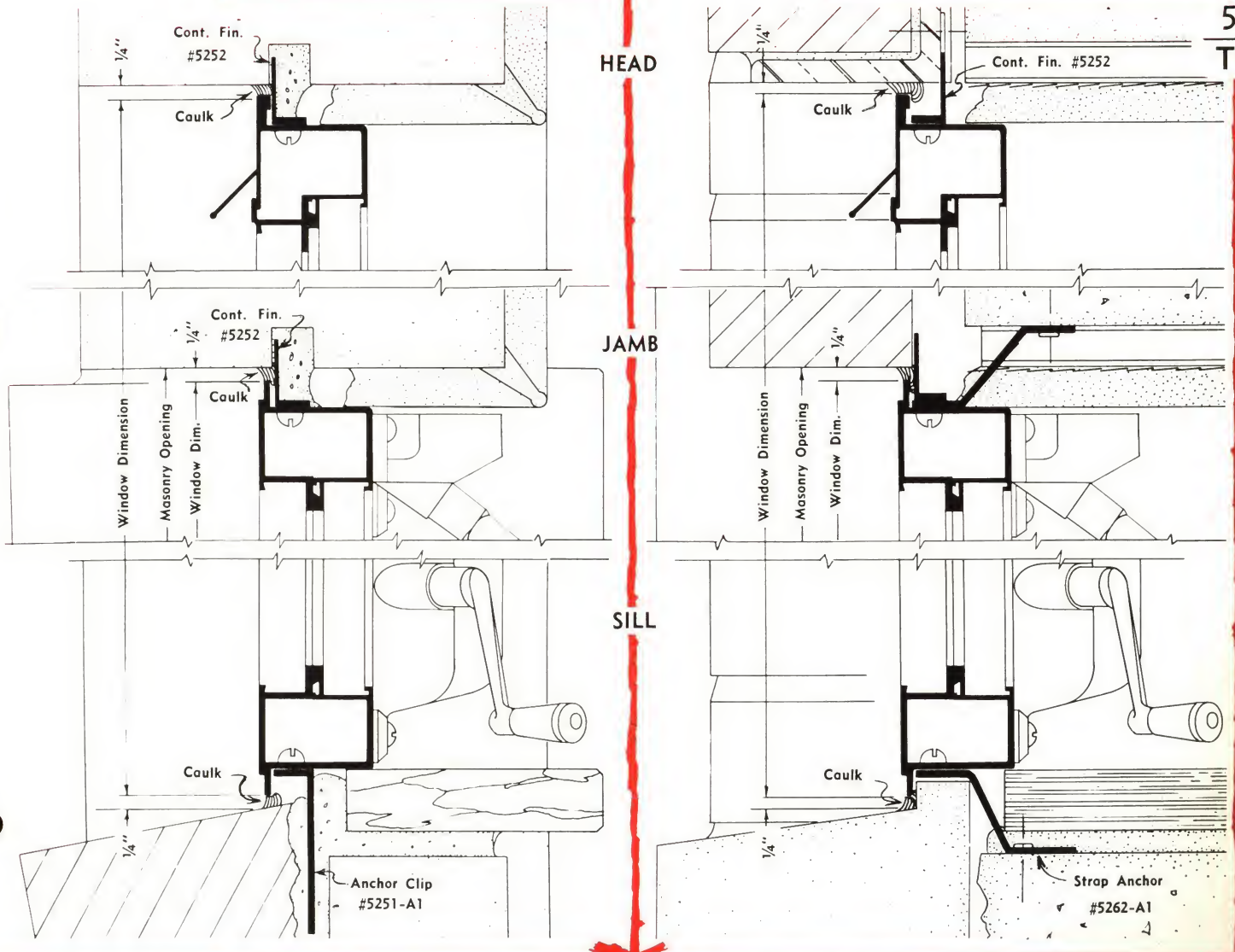
SOLID MASONRY

5a
Tru

HEAD

JAMB

SILL



VENTS – The vents shall be high pressure riveted in such manner as to insure a rugged sturdy unit. Each ventilator shall in the assembled window have a maximum opening of no less than 80° with the upper vent dropping to a sufficient degree to permit the cleaning of that vent from within.

When a vent is in the closed position, the vinyl weatherstrip seal concealed on the perimeter of the inner leg flange of the frame will be compressed thus supplementing the metal-to-metal contact seal. This also permits a metal-to-metal contact seal on the perimeter of the outer leg flange of the frame.

LINKAGE ADJUSTMENT ON VENTILATORS – There shall be provided on both sides of each vent a micromatic link adjustment of no less than ¼" movement. The purpose of said adjustment shall be to bring about a perfect alignment and sealing contact between the frame and adjacent vent thus definitely controlling the amount of air infiltration.

FINISH – Windows shall be in natural aluminum finish thoroughly buffed and cleaned before shipment.

MULLIONS – Shall be as furnished by the Tru-Seal Window Division, Inc., for aluminum awning windows as required.

SCREENS – Shall be supplied by the Tru-Seal Window Division, Inc., with rolled or extruded section set in rabbet in frame and secured with clips as required.

ERECTION – Windows shall be erected by the general contractor, anchored as detailed with clips, fins or mulls as specified. Windows shall be properly shimmed and carefully braced to maintain perfect alignment until surrounding structure is secure.

CAULKING – Before erection, the entire perimeter of each frame shall be caulked with non-staining caulking compound.

GLAZING – We recommend the use of the TRU-SEAL snap on aluminum glazing bead for permanence and appearance plus ease of glazing to save time and costs. However, windows may be glazed from outside using spring glazing clips and aluminum sash putty.

DRAWINGS AND INSTALLATION DETAILS – The TRU-SEAL Division will furnish standard details showing recommendations for the installation of the windows and prepare such drawing as required for the convenience of the architect and contractor.

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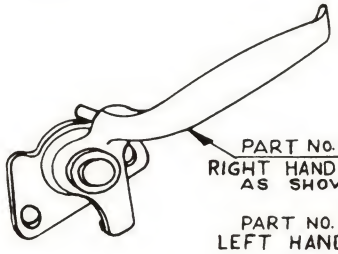
Accessories

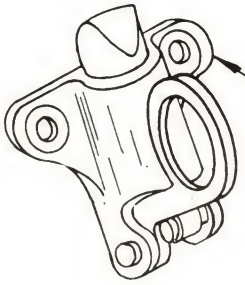
HOPPER LATCH



PART NO. 7514R
RIGHT HAND
AS SHOWN

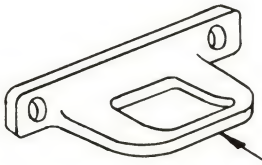
PART NO. 7514L
LEFT HAND

SPRING PULL



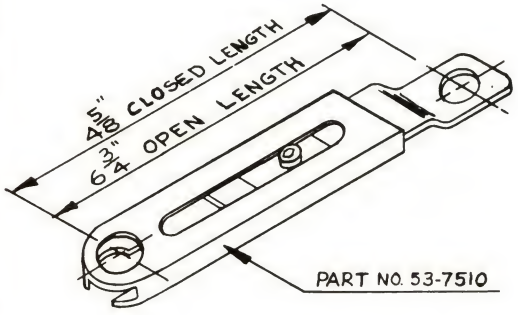
PART NO. 7516

KEEPER

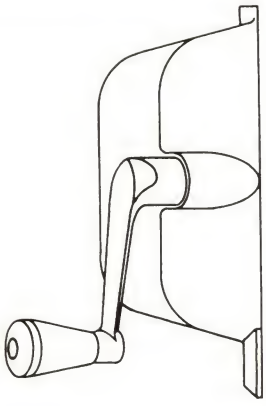


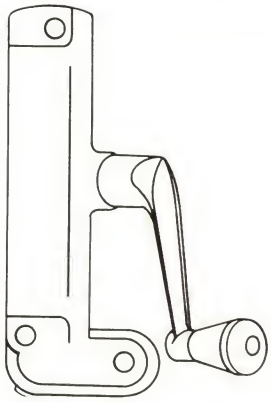
PART NO. 7517

HOPPER LINK

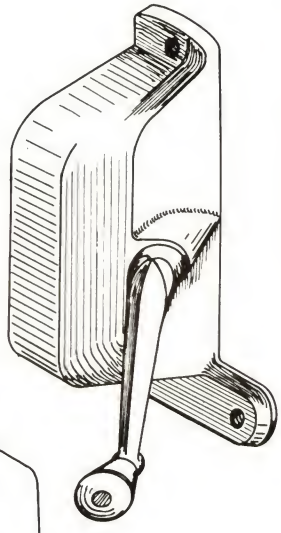


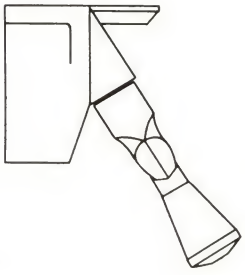
PART NO. 53-7510

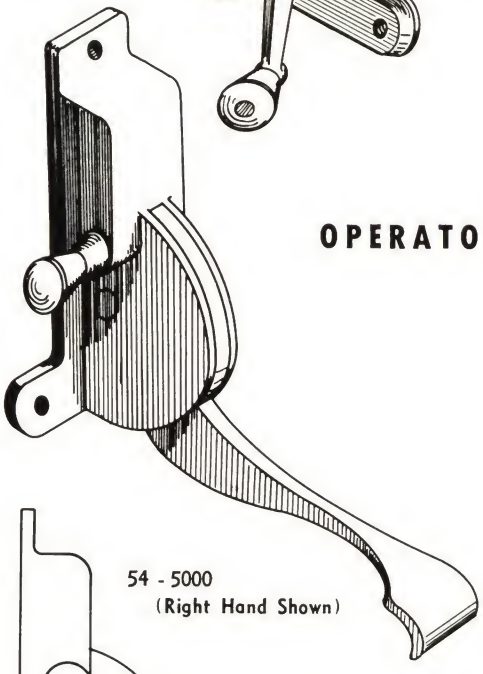




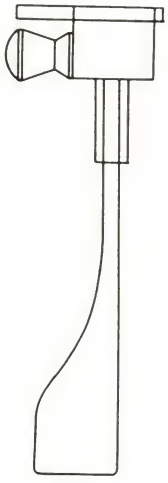
53 - 5000
(Left Hand Shown)



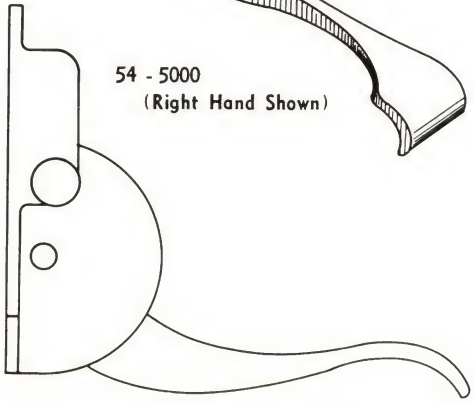


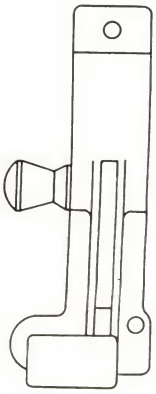


OPERATOR



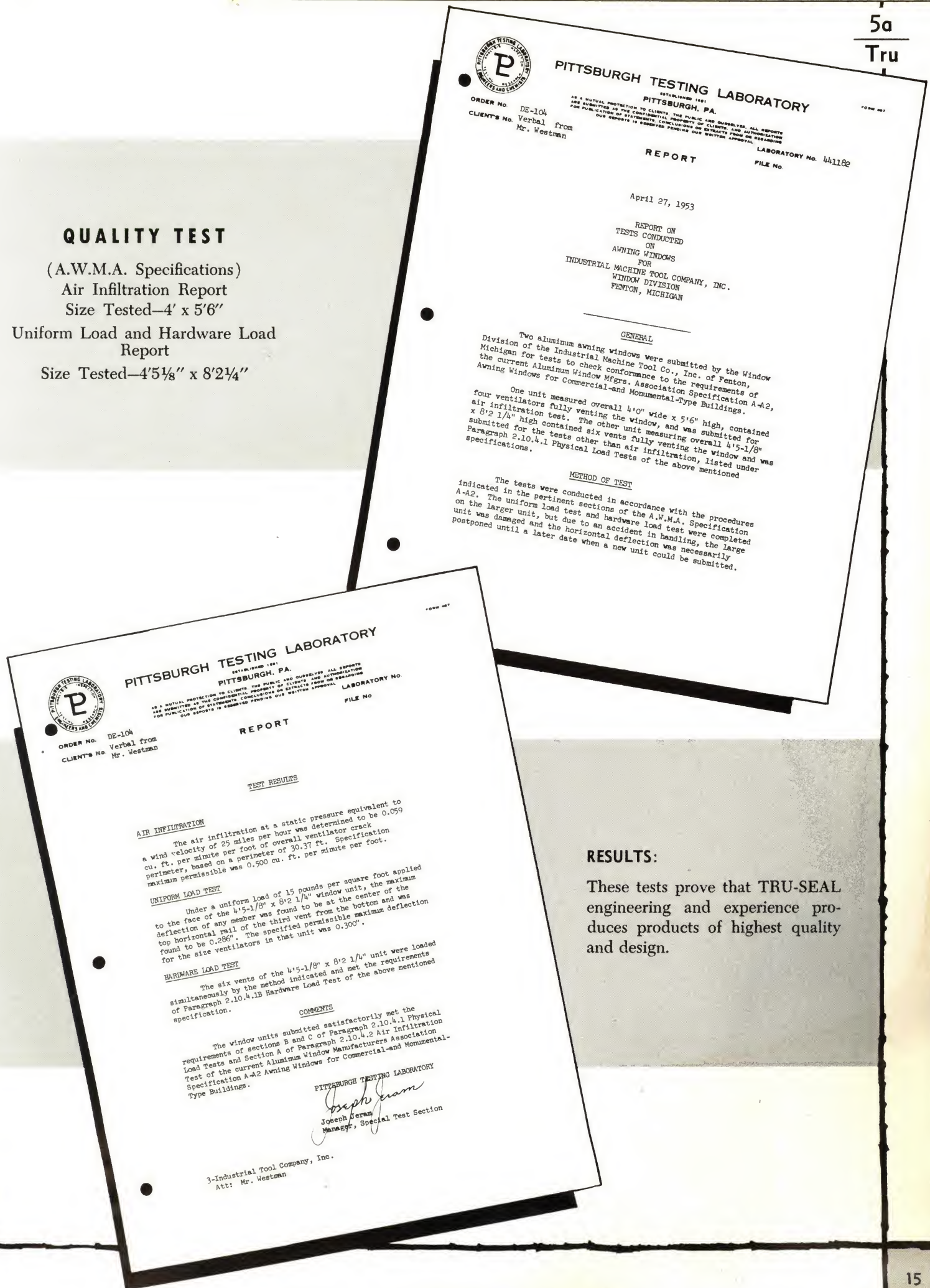
54 - 5000
(Right Hand Shown)





QUALITY TEST

(A.W.M.A. Specifications)
Air Infiltration Report
Size Tested—4′ x 5′6″
Uniform Load and Hardware Load Report
Size Tested—4′5⅛″ x 8′2¼″



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ORDER NO. DE-104
CLIENT'S NO. Verbal from Mr. Westman

LABORATORY NO. 441182
FILE NO.

REPORT

April 27, 1953

REPORT ON
TESTS CONDUCTED
ON
AWNING WINDOWS
FOR
INDUSTRIAL MACHINE TOOL COMPANY, INC.
WINDOW DIVISION
FENTON, MICHIGAN

GENERAL

Two aluminum awning windows were submitted by the Window Division of the Industrial Machine Tool Co., Inc. of Fenton, Michigan for tests to check conformance to the requirements of the current Aluminum Window Mfgrs. Association Specification A-A2, Awning Windows for Commercial-and Monumental-Type Buildings.

One unit measured overall 4′0″ wide x 5′6″ high, contained four ventilators fully venting the window, and was submitted for air infiltration test. The other unit measuring overall 4′5-1/8″ x 8′2 1/4″ high contained six vents fully venting the window and was submitted for the tests other than air infiltration, listed under Paragraph 2.10.4.1 Physical Load Tests of the above mentioned specifications.

METHOD OF TEST

The tests were conducted in accordance with the procedures indicated in the pertinent sections of the A.W.M.A. Specification A-A2. The uniform load test and hardware load test were completed on the larger unit, but due to an accident in handling, the large unit was damaged and the horizontal deflection was necessarily postponed until a later date when a new unit could be submitted.

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ORDER NO. DE-104
CLIENT'S NO. Verbal from Mr. Westman

LABORATORY NO.
FILE NO.

REPORT

TEST RESULTS

AIR INFILTRATION

The air infiltration at a static pressure equivalent to a wind velocity of 25 miles per hour was determined to be 0.059 cu. ft. per minute per foot of overall ventilator crack perimeter, based on a perimeter of 30.37 ft. Specification maximum permissible was 0.500 cu. ft. per mimute per foot.

UNIFORM LOAD TEST

Under a uniform load of 15 pounds per square foot applied to the face of the 4′5-1/8″ x 8′2 1/4″ window unit, the maximum deflection of any member was found to be at the center of the top horizontal rail of the third vent from the bottom and was found to be 0.286″. The specified permissible maximum deflection for the size ventilators in that unit was 0.300″.

HARDWARE LOAD TEST

The six vents of the 4′5-1/8″ x 8′2 1/4″ unit were loaded simultaneously by the method indicated and met the requirements of Paragraph 2.10.4.1B Hardware Load Test of the above mentioned specification.

COMMENTS

The window units submitted satisfactorily met the requirements of sections B and C of Paragraph 2.10.4.1 Physical Load Tests and Section A of Paragraph 2.10.4.2 Air Infiltration Test of the current Aluminum Window Manufacturers Association Specification A-A2 Awning Windows for Commercial-and Monumental-Type Buildings.

PITTSBURGH TESTING LABORATORY
Joseph Geram
Joseph Geram
Manager, Special Test Section

3-Industrial Tool Company, Inc.
Att: Mr. Westman

RESULTS:

These tests prove that TRU-SEAL engineering and experience produces products of highest quality and design.

NORTH-EAST-SOUTH or WEST

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TRU-SEAL

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BEAUTY · EFFICIENCY PERMANENCE

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TRU-SEAL WINDOWS Division, Industrial Machine Tool Co., Inc. FENTON, MICHIGAN